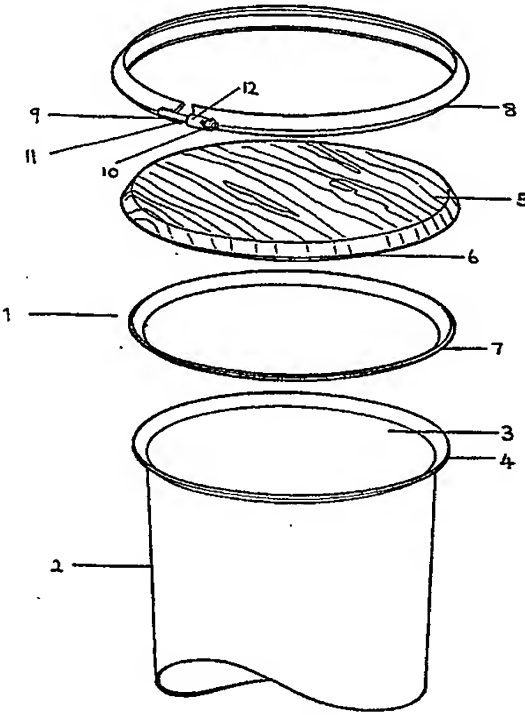


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| <p>(51) International Patent Classification ⁵ : B65D 8/04, 45/32</p> | <p>A1</p> | <p>(11) International Publication Number: WO 94/08859 (43) International Publication Date: 28 April 1994 (28.04.94)</p> |
| <p>(21) International Application Number: PCT/AU93/00522 (22) International Filing Date: 11 October 1993 (11.10.93) (30) Priority data: PL 5183 9 October 1992 (09.10.92) AU (71)(72) Applicant and Inventor: OSBORN, Chester [AU/AU]; D'Arenberg Wines Pty. Ltd., Osborn Road, McLaren Vale, S.A. 5171 (AU). (74) Agent: COLLISON & CO.; 117 King William Street, Ade- laide, S.A. 5000 (AU). (81) Designated States: AT, AU, BB, BG, BR, CA, CH, CZ, DE, DK, ES, FI, GB, HU, JP, KP, KR, KZ, LK, LU, LV, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SK, UA, US, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).</p> | | <p>Published <i>With international search report.</i></p> |
| <p>(54) Title: WINE CONTAINER</p> <p>(57) Abstract</p> <p>A wine container (1) comprising: a non-porous drum (2) having at least one open end (3), the said at least one open end having a frusto-conical flange (4) extending outwards therefrom; a wooden end cover (5) having a sealing surface (6) around an edge thereof adapted to be received on the flange; a gasket (7) disposed between the sealing surface and the flange, the gasket serving to provide a fluid tight seal between the flange and the wooden end cover; releasable locking means (8) adapted to secure the wooden end cover and gasket on the drum in a fluid tight position.</p>  | | |

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WINE CONTAINER

TECHNICAL FIELD

This invention relates to a wine container.

BACKGROUND ART

- 5 Traditionally wine is matured and aged in wooden barrels the wood being generally made of oak. The oak has the purpose of providing desirable wine characteristics such as colour, bouquet and flavour obtained by a combination of oxidation in the permeable oak barrels in addition to tannins provided by the phenolics of the wood.
- 10 However oak barrels are expensive to maintain and problems can occur due to reuse of the barrel. For example, due to the porous nature of the wood wine residue from previous usage can contaminate the wine further stored in the barrel. Furthermore, the tannins from the wood are decreased when re-using oak barrels and therefore the flavour becomes substantially reduced.
- 15 Consequently, this affects the quality control and consistency of the wine characteristics.

- A further problem inherent when re-using oak wine barrels (or other wooden barrels) is that bacteria or fungi may form on the inside of the wine container. This may be removed by either using an expensive chemical cleaning
- 20 process (which may have the effect of modifying the characteristics of future wine stored within the cask) or by planing the inside of the barrel which therefore reduces the thickness of the barrel walls. The planing process is labour intensive and can only be done a small number of times before the thickness of the barrel walls is insufficient to hold a quota of wine.
- 25 In US Patent No. 4813565 there is disclosed a wine cask having a base assembly and an end cover assembly with a plurality of oak staves extending around the circumference of the wine cask. However this wine cask is expensive to manufacture due to its complex fabrication and the number of components. Furthermore the clamping of the cask requires adjustment due
- 30 to the expansion and contraction of the oak staves, therefore regular

maintenance is required.

One of the further problems with oak barrels is that if wine is stored in these then in practice the wine will be "over-oaked" if left for a conventional storage period. This means in practice that the wine is left on oak for a shorter period
5 and then transferred to a non wood container for the remaining storage period required to establish oxidative stability. Alternately, a small proportion of the wine is left on oak for the full period and then blended into a larger un-oaked body of wine. Unfortunately, this last mentioned technique does not allow for oxidative stability to be developed for the whole quantity of wine for the whole
10 period of storage and this is a significant disadvantage.

It is the intended object of this invention to alleviate the above problems or at least provide the public with a useful alternative.

DISCLOSURE OF THE INVENTION

According to one form of the present invention, although this need not be the
15 only or the broadest form, there is proposed a wine container made from a non-porous material, having at least one open end, and at least one wooden end cover adapted to form a fluid tight seal with the at least one open end, wherein the at least one wooden end cover is provides a wine to wood interface. The wine to wood interface provides a means of controlling the rate
20 of oxidation to assist imparting the required characteristics to the wine.

In preference, there is a releaseable locking means and a gasket means for assisting in providing the fluid tight seal.

Alternatively according to another form of this invention, although this need not be the only or the broadest form, there is proposed a wine container
25 including:

- a non-porous drum having at least one open end, the said at least one open end having a frusto-conical flange extending outwardly from the drum;
- a wooden end cover having a sealing surface adapted to receive the
30 flange;
- a gasket adapted to form a sealing engagement between the sealing surface and the flange; and

releaseable locking means adapted to effect a fluid tight seal between the sealing surface and the flange with the gasket therebetween.

5 In preference, the locking means is adapted to be adjustable such that variations of pressure can be applied to the gasket sandwiched between the sealing surface and the flange. This allows various pressures to be applied to seal the container and therefore the engineering tolerances and wear and tear upon the component parts of the wine container may not necessarily cause problems to the fluid tight releaseable seal.

10 In preference, the gasket is adapted to be complementary to the flange and the at least one wooden end cover.

Conventionally, metal wine containers can have a central refill opening in their side. However, this increases the expense of manufacturing such containers. Hence, in a preferable form the refill opening is located the wooden end piece.

15 In preference, the angle formed between the outside of the drum and the outside of the flange is greater than 130 degrees and less than 160 degrees. This provides a reliable fluid tight seal without the need for expensive sealing arrangements.

20 In preference, the locking means is a ring having an adjustable means, the ring being complementary to the outside of the flange and further shaped such that upon tightening of the adjustable means the ring provides a compressive force between the sealing surface and the flange. This therefore forms a fluid tight seal by the arrangement of the gasket between the at least one sealing surface and the flange.

25 In preference, the adjustable means is a gap in the ring in which a nut, bolt and boss arrangement are adapted to close the gap, one side of the bolt being attached to the ring at one side of the gap such that the bolt spans the gap and passes through the boss, the boss being attached to the ring at the other side of the gap, and the nut being screwed upon the bolt.

BRIEF DESCRIPTION OF THE DRAWINGS

For a better understanding of this invention preferred embodiments will now be described with the assistance of drawings in which:

5 FIG. 1 is a partial perspective view of a wine container in accordance with a first aspect of the present invention,

FIG. 2 is a cross sectional view of the wine container of FIG. 1, and

FIG. 3 represents a cross sectional view of one end portion of a wine container in accordance with a second aspect of the present invention.

10 Referring to FIG. 1 there is illustrated a wine container 1 including a metal drum 2. The metal drum 2 has an at least one open end 3. The open end 3 terminates in an annular flange 4 which is splayed and extends outwardly from the metal drum 2.

15 The open end 3 is closed by a wooden end cover 5. The wooden end cover 5 (preferably made of oak) has a sealing surface 6 which has an underside chamfered around the edges thereof so as to be complementary to the shape of the annular flange 4.

20 Disposed between the sealing surface 6 and the flange 4 is an annular gasket 7. Furthermore, the annular gasket 7 has a shape complementary to the sealing surface 6 and annular flange 4. The gasket 7 ensures that a fluid tight seal can be formed between the drum 2 and the cover 5.

25 The wooden end cover 5 is securely attached to the drum 2 by adjustable locking means 8. The adjustable locking means 8 is so shaped such that when the component parts of the wine container are arranged as shown in FIG. 2, the adjustable locking means 8 provides pressure to the annular gasket 7 sandwiched between the sealing surface 6 and annular flange 4. This is achieved by having the locking means 8 adapted to fit closely around an outer surface of the annular flange 4 and an edge of the upper side of the end cover 5. This therefore provides a fluid tight sealing arrangement in which pressure variations are facilitated by the adjustment means which

consists of a nut 10, bolt 11 and boss 12 arrangement.

Although the annular gasket 7 is illustrated as being a separate component it may be adhered to the sealing surface 6 or the annular flange 4.

This is illustrated in FIG. 3 in which the refill opening 13 can be used to top up the wine stored within the wine container 1. Furthermore, the refill bung 14 is used to provide an fluid tight seal to stop leakage or other such problems.

Referring to the preferred embodiment of FIG. 3 the angle between the outside of the cylindrical drum and the outside of the annular flange is approximately between 130 degrees to 160 degrees. Although other angles are suitable the cost of manufacture and quality of the sealing effect may be significant.

The annular flange 4 is generally frusto-conical in shape.

The wine container 1 as described above provides an economical solution to the storage and aging of wine whilst providing a wine wood interface for achieving desirable wine characteristics. The wooden end cover 5 may be reused if required (after cleaning or planing its surface) or simply turned around. Due to the non-porous characteristics the metal drum 2 can be economically cleaned for re-use.

A further significant advantage of this arrangement is that the containers can be stored in an upright position. In other words the wooden ends will be uppermost and lowermost. The advantage of this can be understood when the traditional storage arrangements of an oak barrel are explained. These are stored horizontally on expensive cradles. If barrels are to be located above one another then expensive shelving is necessary. Conversely if the containers in accord with this invention are used for wine storage then these can be simply supported on a cheaply purchased pallet and with a plurality of these on each pallet one pallet can rest on the other.

Estimates of saving in space suggest at least 15% saving compared with conventional barrels for a similar quantity of wine.

Throughout this specification various indications have been given as to the scope of the invention but the invention is not limited to any one of these

indications. It should also be known that the examples are given for illustration only.

CLAIMS:

1. A wine container comprising:
a non-porous drum having at least one open end, the said at least
one open end having a frusto-conical flange extending outwardly therefrom;
5 a wooden end cover having a sealing surface around an edge
thereof adapted to be received on the flange;
a gasket disposed between the sealing surface and the flange, the
gasket serving to provide a fluid tight seal between the flange and the wooden
end cover;
10 releaseable locking means adapted to secure the wooden end cover
and gasket on the drum in a fluid tight position.
2. A wine container according to claim 1 wherein the releaseable
locking means is shaped to conform to the wooden end cover.
3. A wine container according to claim 1, wherein the gasket is fixed to
15 the sealing surface of the wooden end cover.
4. A wine container according to any one of the preceding claims,
wherein the gasket has an inner surface adapted for fitment between the
wooden end cover and the flange.
5. A wine container according to any one of the preceding claims,
20 wherein the releaseable locking means is adjustable so as to regulate the
pressure applied to the gasket.
6. A wine container according to claim 4, wherein the releasable
locking means comprises a split ring member interconnected at ends thereof
by a nut threadedly engaged with a bolt attached to one end of the ring, the
25 nut being moveable over the bolt to adjust the locking means, thereby
adjusting the pressure applied to the gasket.
7. A wine container according to any one of the preceding claims, in
which the wooden end cover is disc shaped with upper and lower surfaces,
the surfaces having respective bevelled edges to produce a reversible cover.

8. A wine container according to any of the preceding claims, wherein the wooden end cover has a sampling aperture therein closed simply by a removable closure means.
- 5 9. A wine container according to any of the preceding claims, in which the angle formed between the underside of the flange and the sides of the drum is between 130 and 160 degrees.

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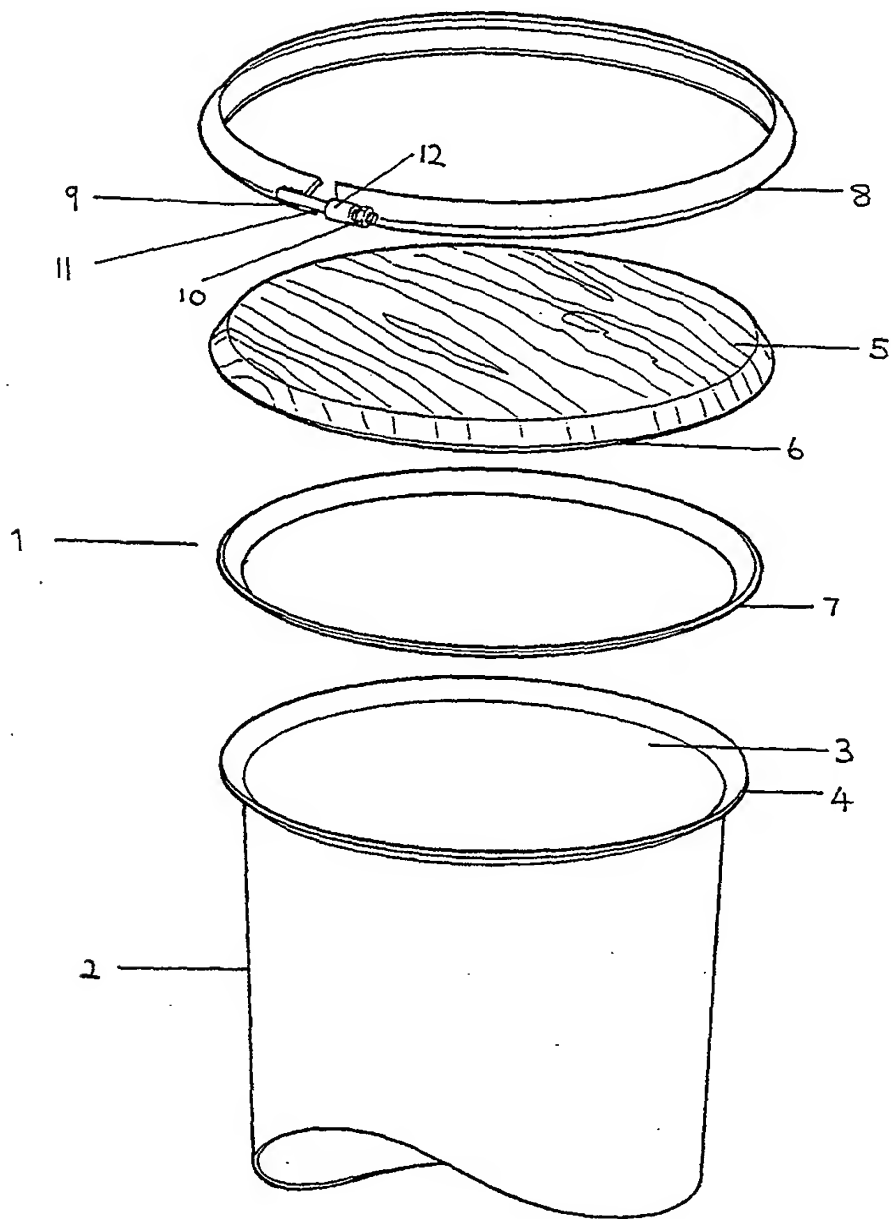


FIG 1

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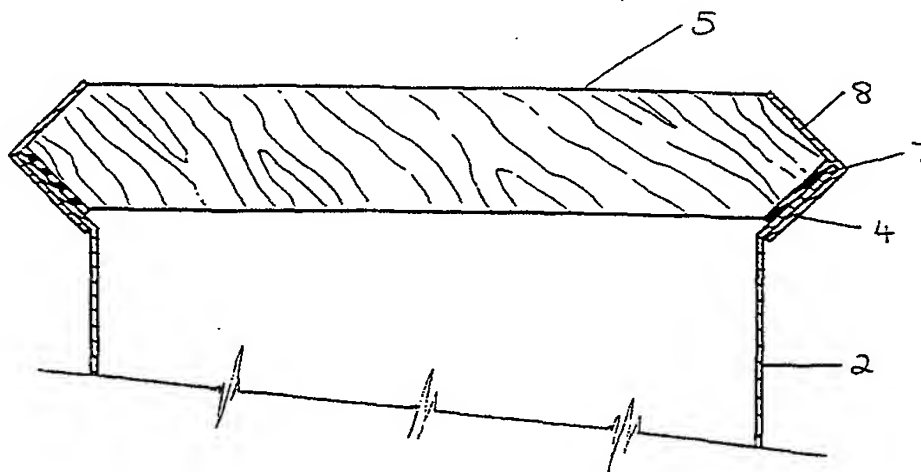


FIG 2

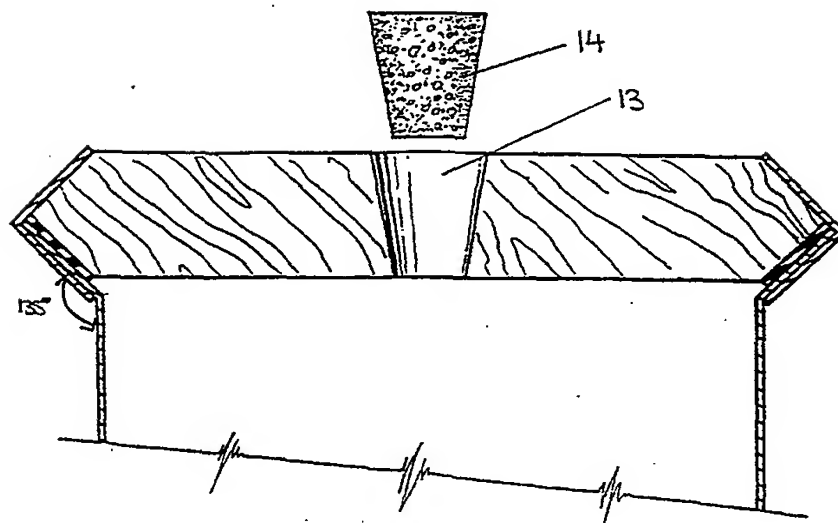



FIG 3

SUBSTITUTE SHEET

INTERNATIONAL SEARCH REPORT

international application no.

PCT/AU 93/00522

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| A. CLASSIFICATION OF SUBJECT MATTER Int. Cl. ⁵ B65D 8/04, 45/32 According to International Patent Classification (IPC) or to both national classification and IPC | | | | |
| B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) Int Cl ⁵ B65D 8/04, 45/32 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched AU: IPC as above Electronic data base consulted during the international search (name of data base, and where practicable, search terms used) DERWENT: B65D 8/-: and wine DERWENT: B65D 45/-: and wine | | | | |
| C. DOCUMENTS CONSIDERED TO BE RELEVANT | | | | |
| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to Claim No. | | |
| A Y | US,A, 4813565 (CROSER) 21 March 1989 (21.03.89) whole specification column 2 lines 35-41 | 8 | | |
| X,Y | US,A, 4998643 (PRADEL) 12 March 1991 (12.03.91) whole specification | 1-9 | | |
| X,Y | US,A, 5092488 (PRADEL) 3 March 1992 (03.03.92) whole specification | 1-9 | | |
| <div style="display: flex; justify-content: space-between;"> <div> <input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. </div> <div> <input checked="" type="checkbox"/> See patent family annex. </div> </div> | | | | |
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| Date of the actual completion of the international search 5 November 1993 (05.11.93) | | Date of mailing of the international search report 24 Nov 1993 (24.11.93) | | |
| Name and mailing address of the ISA/AU AUSTRALIAN INDUSTRIAL PROPERTY ORGANISATION PO BOX 200 WODEN ACT 2606 AUSTRALIA Facsimile No. 06 2853929 | | Authorized officer  G M COX Telephone No. (06) 2832484 | | |

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International application No.

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| C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT | | |
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| Category * | Citation of document, with indication, where appropriate of the relevant passages | Relevant to Claim No. |
| A | US,A, 2529138 (CHESNEY) 7 November 1950 (07.11.50) whole specification | |
| Y | EP,A, 471918 (MAUSER-WERKE GmbH) 26 February 1992 (26.02.92) whole specification | 4-6, 8 |
| Y | AU,A, 11532/33 (BARNES) 8 March 1934 (08.03.34) whole specification | 8 |
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| Y | AU,A, 15411/70 (RHEEM AUSTRALIA PTY LTD) 25 November 1971 (25.11.71) whole specification | 5, 6 |

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INTERNATIONAL APPLICATION NO.

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This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

| Patent Document Cited in Search Report | | | | Patent Family Member | | | |
|--|----------|----------|---------------------|----------------------|---------------------|----------|-------------------|
| US | 4813565 | AU GB | 65549/86 2183593 | FR JP | 2590551 62182038 | GB NZ | 8627771 218318 |
| US | 4998643 | AU US | 75387/91 5092488 | EP | 456543 | FR | 2661890 |
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| EP | 471918 | DE US | 9011586 5201437 | EP | 471918 | JP | 4253639 |
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| US | 4674650 | | | | | | |
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